

CLAIMS

1. The use of a formulation comprising the components:

(a) a volatile chemical inducer;

5 (b) a polyethoxylated C<sub>10</sub>-C<sub>20</sub> alcohol or a trisiloxane polyethoxylate and

(c) a diluent;

for controlling expression of a target gene in an organism having a chemically-inducible gene expression cassette comprising an inducible promoter operatively linked to the target gene wherein the inducible promoter is induced by the application  
10 to the organism of (a) above.

2. The use according to claim 1 wherein the organism is a plant.

3. The use according to claim 1 or claim 2 wherein component (a) is a C<sub>1</sub>-C<sub>6</sub> alcohol or  
15 a C<sub>3</sub>-C<sub>9</sub> ketone.

4. The use according to any one of claims 1 to 3 wherein component (a) is ethanol or propan-2-ol.

20 5. The use according to any one of claims 1 to 4 wherein component (b) is a polyethoxylated oleyl, lauryl, stearyl or cetyl alcohol.

6. The use according to any one of the preceding claims wherein component (b) is a polyoxyethylene-oleyl alcohol.

25 7. The use according to any one of the preceding claims wherein component (b) is a polyoxyethylene-oleyl alcohol with a mean molar ethylene oxide content in the range of 2 to 20.

30 8. The use according to claim 7 wherein component (b) is a polyoxyethylene-(2)-oleyl alcohol, a polyoxyethylene-(10)-oleyl alcohol or a polyoxyethylene-(20)-oleyl

alcohol.

9. The use according to any one of claims 1 to 8 wherein component (b) is at a concentration of about 0.5% wt/wt or less.

10. The use according to any one of claims 1 to 4 wherein component (b) is a hydrogen or a methyl end-capped trisiloxane polyethoxylate.

11. The use according to claim 10 wherein component (b) is a methyl end-capped trisiloxane polyethoxylate.

12. The use according to claim 10 or claim 11 wherein component (b) is a methyl end-capped trisiloxane polyethoxylate wherein the mean molar ethylene oxide content is between 4 and 12 per molecule.

13. The use according to claim 12 wherein component (b) is a methyl end-capped trisiloxane polyethoxylate wherein the mean molar ethylene oxide content is 8 per molecule.

14. The use according to any one of claims 10 to 13 wherein component (b) is at a concentration of about 0.5% wt/wt or less.

15. The use according to any one of claims 1 to 14 wherein component (a) is at a concentration between about 2% and 5% wt/wt.

16. A method of controlling expression of a target gene in an organism comprising transforming the organism with a chemically-inducible plant gene expression cassette comprising an inducible promoter operatively linked to the target gene wherein the inducible promoter is induced by the application to the organism of a formulation as defined in any one of claims 1 to 15.

17. A method according to claim 16 wherein the organism is a plant.
18. A method of controlling expression of a target gene in a plant comprising transforming the plant with a chemically-inducible plant gene expression  
5 cassette comprising a first promoter operatively linked to a regulator sequence which encodes a regulator protein, and an inducible promoter operatively linked to the target gene, the inducible promoter being activated by the regulator protein in the presence of a formulation as defined in any one of claims 1 to 15, the method comprising applying to the plant a formulation as  
10 defined in any one of claims 1 to 15, whereby application of the inducing formulation causes expression of the target gene.
19. A method according to any one of claims 16 to 18 wherein the inducible  
15 promoter is the *alcA* inducible promoter sequence and the regulator sequence encodes the *alcR* regulator protein.
20. An agricultural formulation consisting essentially of the following components:  
(a) a volatile chemical inducer of an inducible promoter;  
20 (b) a trisiloxane polyethoxylate; and  
(c) a diluent.
21. A formulation according to claim 20 wherein component (b) is a hydrogen or a methyl end-capped trisiloxane polyethoxylate.  
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22. A formulation according to claim 21 wherein component (b) is a methyl end-capped trisiloxane polyethoxylate.
23. A formulation according to claim 21 or 22 wherein component (b) is a methyl  
30 end-capped trisiloxane polyethoxylate wherein the mean molar ethylene oxide content is between 4 and 12 per molecule.

24. A formulation according to claim 23 wherein component (b) is a methyl end-capped trisiloxane polyethoxylate wherein the mean molar ethylene oxide content is 8 per molecule.
- 5 25. A formulation according to any one of claims 20 to 24 wherein component (a) is at a concentration between about 2% and 5% wt/wt.
26. An agricultural formulation, comprising  
(a) a C<sub>1</sub>-C<sub>6</sub> alcohol inducer of an inducible promoter in an amount of less than  
10 5%wt/wt;  
(b) a polyethoxylated C<sub>10</sub>-C<sub>20</sub> alcohol; and  
(c) water.
27. A formulation according to claim 26 wherein component (b) is a polyethoxylated  
15 oleyl, lauryl, stearyl or cetyl alcohol.
28. A formulation according to claim 26 or claim 27 wherein component (b) is a polyoxyethylene-oleyl alcohol.
- 20 29. A formulation according to any one of claims 26 to 28 wherein component (b) is a polyoxyethylene-oleyl alcohol with a mean molar ethylene oxide content in the range of 2 to 20.
30. A formulation according to claim 29 wherein component (b) is a polyoxyethylene-  
25 (2)-oleyl alcohol.
31. A formulation according to claim 29 wherein component (b) is a polyoxyethylene-(10)-oleyl alcohol.

32. A formulation according to claim 29 wherein component (b) is a polyoxyethylene-(20)-oleyl alcohol.
33. A formulation according to any one of claims 26 to 32 wherein component (a) is at a concentration between about 2% to less than 5% wt/wt.
34. A formulation according to any one of claims 20 to 33 wherein component (b) is at a concentration of about 0.5% wt/wt or less.
35. A formulation according to any one of claims 20 to 34 wherein component (a) is ethanol or propan-2-ol.
36. An agricultural formulation comprising  
(a) a  $C_3$ - $C_9$  ketone which is able to act as a chemical inducer of an inducible promoter;  
(b) a polyethoxylated  $C_{10}$ - $C_{20}$  alcohol; and  
(c) a diluent.
37. A formulation according to claim 36 wherein component (a) is at a concentration between about 2% and 5% wt/wt.
38. A formulation according to claim 36 or claim 37 wherein component (b) is a polyethoxylated oleyl, lauryl, stearyl or cetyl alcohol.
39. A formulation according to claim 38 wherein component (b) is a polyoxyethylene-oleyl alcohol.
40. A formulation according to claim 39 wherein component (b) is a polyoxyethylene-oleyl alcohol with a mean molar ethylene oxide content in the range of 2 to 20.

41. A formulation according to claim 40 wherein component (b) is a polyoxyethylene-(2)-oleyl alcohol.
42. A formulation according to claim 40 wherein component (b) is a polyoxyethylene-(10)-oleyl alcohol.
43. A formulation according to claim 40 wherein component (b) is a polyoxyethylene-(20)-oleyl alcohol.